

Serial No. 10/691,856
Amendment dated Dec. 14, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (canceled)
2. (currently amended) A filter cartridge comprising:
 - (a) first and second, opposite, ends;
 - (i) the first end having an air flow exit aperture therethrough;
 - (b) filter media extending between the first and second ends;
 - (c) outer framework having a sidewall structure circumscribing the media at least at a location adjacent the first end and having an outer surface; the outer framework including an air ~~permeable~~ impermeable portion in the sidewall structure of the outer framework; and,
 - (d) a first member of a non-continuously threaded, rotational engagement mechanism positioned adjacent to, and spaced from, the first end, and is positioned on an outer surface of the outer framework, integral with a remainder of the outer framework; and,
 - (e) an axial seal ring on the first end and circumscribing the air flow exit aperture.
3. (original) A filter cartridge according to claim 2 wherein:
 - (a) the outer framework extends completely between the filter cartridge first and second ends.
4. (original) A filter cartridge according to claim 3 wherein:
 - (a) the first end includes a first, molded, end cap and the axial seal ring is an integrally molded portion of the first, molded, end cap.

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5. (original) A filter cartridge according to claim 4 wherein:
- (a) the first end cap and seal ring comprise foamed polyurethane having a hardness, Shore A, of no greater than 30.
6. (currently amended) A filter cartridge comprising:
- (a) first and second, opposite, ends;
 - (i) the first end having an air flow exit aperture therethrough;
 - (b) filter media extending between the first and second ends;
 - (c) outer framework having a sidewall structure circumscribing the media at least at a location adjacent the first end and having an outer surface; the outer framework including an air ~~permeable~~ impermeable portion in the sidewall structure of the outer framework; and,
 - (d) a first member of a non-continuously threaded, rotational engagement mechanism positioned adjacent to, and spaced from, the first end, the first member comprising a segmented ring; and,
 - (e) an axial seal ring on the first end and circumscribing the air flow exit aperture.
7. (original) A filter cartridge according to claim 6 wherein:
- (a) each segment, of the segmented ring, has first and second opposite ends with:
 - (i) the first end of each segment having a tip; and
 - (ii) the second end of each segment, of the segmented ring, having a stop.
8. (original) A filter cartridge according to claim 6 wherein:
- (a) each ring segment has a cammed surface on a side thereof facing toward said second end cap.

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9. (currently amended) A filter cartridge comprising:
- (a) first and second, opposite, ends;
 - (i) the first end having an air flow exit aperture therethrough;
 - (b) filter media extending between the first and second ends;
 - (c) outer framework having a sidewall structure circumscribing the media at least at a location adjacent the first end and having an outer surface; the outer framework including an air ~~permeable~~ impermeable portion in the sidewall structure of the outer framework, said outer framework extending from said first end to said second end and including:
 - (i) an imperforate shield section adjacent said first end and extending over an axial distance of at least 10% of the axial length of the outer framework; and,
 - (ii) a perforate section having an open area of at least 50% extending between the shield section and the second end; the perforate section having an axial length of at least 20% of the axial length of the outer framework; and,
 - (d) a first member of a non-continuously threaded, rotational engagement mechanism positioned adjacent to, and spaced from, the first end; and,
 - (e) an axial seal ring on the first end and circumscribing the air flow exit aperture.
10. (original) A filter cartridge according to claim 9 wherein:
- (a) the perforate section of the outer framework having an open area of at least 50% comprises a plurality of axial strips interconnected by a spiral, radial, structure.
11. (currently amended) A filter cartridge comprising:
- (a) first and second, opposite, ends;
 - (i) the first end having an air flow exit aperture therethrough;
 - (b) filter media extending between the first and second ends;
 - (c) outer framework having a sidewall structure circumscribing the media at least at a location adjacent the first end and having an outer surface; the outer framework including an air ~~permeable~~ impermeable portion in the sidewall structure of the outer framework; and,

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- (d) a first member of a non-continuously threaded, rotational engagement mechanism positioned adjacent to, and spaced from, the first end; and
- (e) an axial seal ring on the first end and circumscribing the air flow exit aperture; wherein:

the outer framework comprises a molded plastic member extending between the first and second ends; and includes:

- (i) a first, open, end embedded within a first end cap potting and defining an air flow outlet aperture; and
- (ii) a second end embedded within a second end cap potting and including:
 - (A) a central, imperforate end region; and
 - (B) an outer, annular, perforate, region surrounding the central, imperforate, region;
 - (1) the annular perforate, region being embedded in, and closed by, the second end cap potting; and
 - (2) at least a central portion of the central, imperforate, region not being embedded in the second end cap potting.

12. (previously presented) A filter cartridge according to claim 11 wherein:

- (a) the second end has an outer axial, central, surface with central recess therein.

13. (original) A filter cartridge according to claim 12 wherein:

- (a) said central recess in non-circularly shaped.

14. (original) A filter cartridge according to claim 13 wherein:

- (a) said central recess is plus shaped.

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15. (currently amended) A filter cartridge comprising:
- (a) first and second, opposite, ends;
 - (i) the first end having an air flow exit aperture therethrough;
 - (b) filter media extending between the first and second ends;
 - (c) outer framework having a sidewall structure circumscribing the media at least at a location adjacent the first end and having an outer surface; the outer framework including an air ~~permeable~~ impermeable portion in the sidewall structure of the outer framework, and having a conical shaped portion with a portion adjacent the first end having an outer diameter D1 and a portion adjacent the second end having an outer diameter D2, wherein $D1 > D2$; and,
 - (d) a first member of a non-continuously threaded, rotational engagement mechanism positioned adjacent to, and spaced from, the first end; and,
 - (e) an axial seal ring on the first end and circumscribing the air flow exit aperture.
16. (original) A filter cartridge according to claim 15 wherein:
- (a) D1 is at least 10% larger than D2.
17. (original) A filter cartridge according to claim 15 wherein:
- (a) the conical portion of the outer framework has a conical angle within the range of 1° to 4° .
18. (original) An air cleaner assembly comprising:
- (a) a housing having a sidewall and first and second opposite ends;
 - (i) the first end being closed and having an axial outlet tube therein;
 - (ii) the housing including a dust drop tube adjacent the first end;
 - (iii) the housing including a side air flow inlet adjacent the second end;
 - (iv) the housing sidewall second end being an open end; and,
 - (v) the housing having an end cover removably mounted to close the housing second end; the end cover being a completely closed end cover and having a precleaner comprising a shield having a spiral ramp on an outer surface

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thereof; the precleaner being positioned to operably receive air from the said air flow inlet, in use.

19. (original) An air cleaner assembly according to claim 18 including:
- (a) a conical, removable and replaceable, primary filter cartridge positioned therein with:
 - (i) a larger diameter end of the primary filter cartridge sealed to the housing, at a location around the air flow outlet, by an axial seal; and,
 - (ii) with a narrow end of the primary filter cartridge surrounded by the precleaner.
20. (canceled)